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September, 1916

The Canadian Builder & Carpenter

A Bradshaw
188 Davenport Rd
TORONTO ONT

Published Monthly by The Commercial Press, Limited, 32 Colborne St., Toronto

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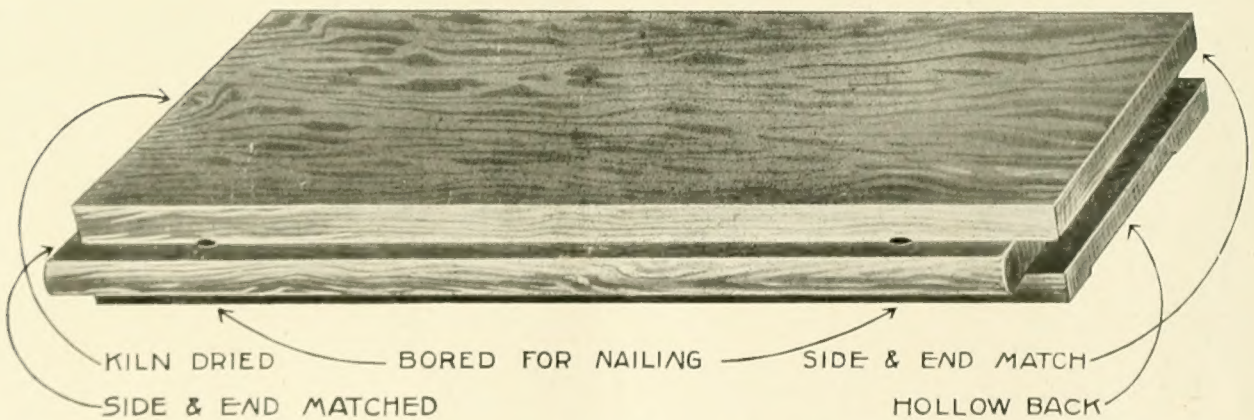

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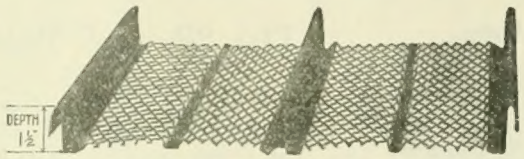

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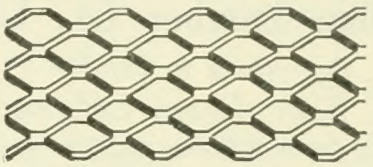

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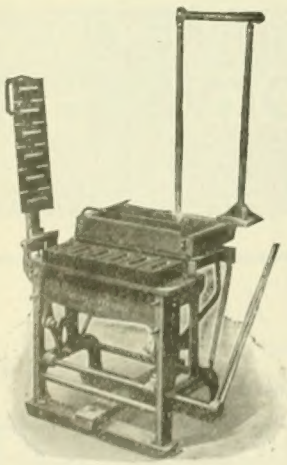

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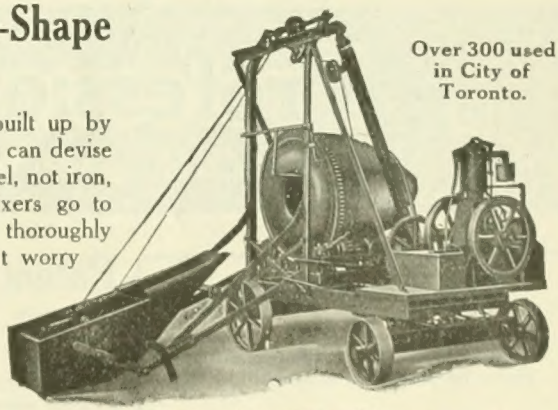
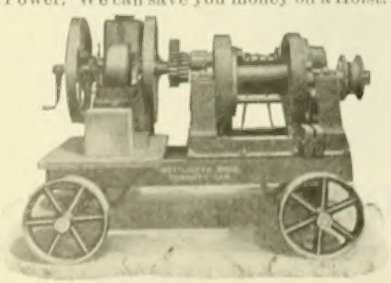


Famous Heart-Shape Mixer

Hoists: Equipped with Gas, Steam or Electric Power. We can save you money on a Hoist.



We manufacture Crushers, Tile, Brick Machines, Pulverizing Rolls, Hoists, Road Pavers, Block Machines, Tile Moulds, Dump Cars, Contractor's Machinery, etc. Let us quote you on your requirements.

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will find that they can get a good deal of business from readers of this paper by persistent advertising.

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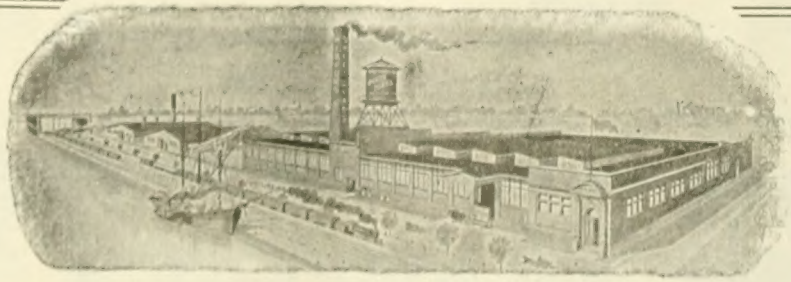

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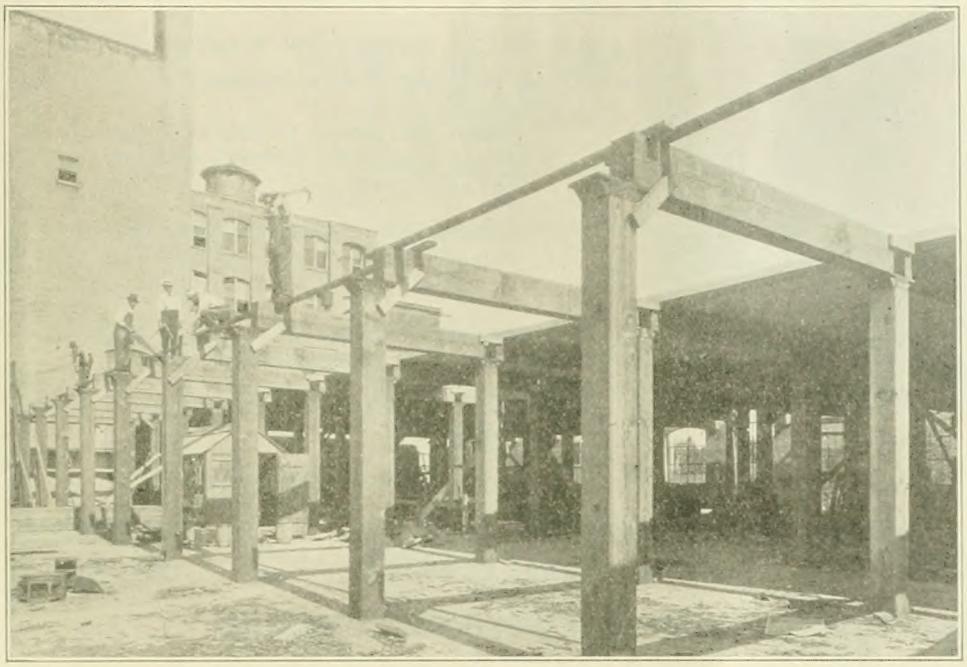

British Columbia Douglas Fir in a Mill Construction Building being erected in Toronto

MILL CONSTRUCTION FOR 100 YEARS HAS BEEN A STANDARD TYPE OF BUILDING FOR FACTORIES, MILLS, WAREHOUSES, AND STORES. IT IS DESERVING OF CAREFUL CONSIDERATION BY EVERY PROSPECTIVE BUILDER OF SUCH STRUCTURES. THE ADVANTAGES OF THE MILL CONSTRUCTION TYPE OF BUILDINGS ARE:—

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2. Reduction in insurance rates. (With sprinkler system the rate on mill construction buildings is less than that for fire-proof types of buildings unsprinklered, and but slightly greater than the rate for sprinklered fire proof buildings).
3. Permits alterations and additions to be easily and cheaply made.
4. It is specially adapted for structures for temporary use. Where the future development of any portion of a city cannot be accurately forecasted, making the selection of a type of building for permanent use difficult, the adoption of the mill construction type is indicated. Also where it is necessary to obtain an immediate revenue and conditions do not justify the erection of a permanent structure, the mill construction building will best answer the purpose.
5. Sanitary and healthful.
6. Saving of time. Of all types of buildings, the mill construction type is the most speedily erected.

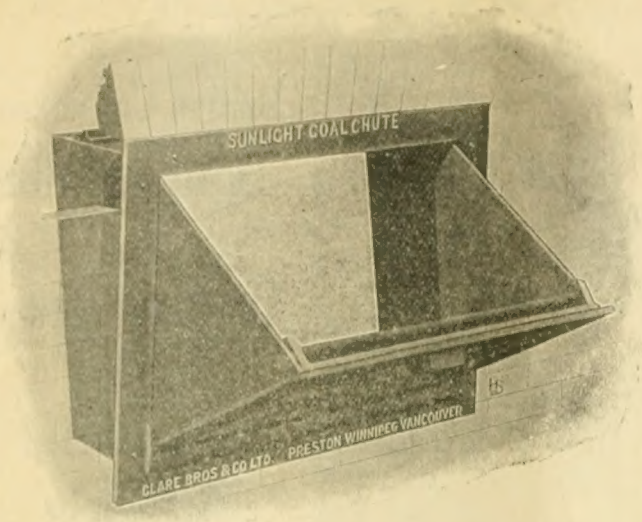
British Columbia Douglas Fir the Best Wood For Heavy Timber Mill Construction

British Columbia Douglas Fir is the strongest wood in the world available in abundance and in all sizes, for posts, beams, girders, and slab floors. It increases in strength with seasoning to a remarkable degree. It is very free from sap, does not twist, and is easy to work.

The superiority of British Columbia Douglas Fir over other woods for mill construction, is recognized by the leading engineers and architects throughout Canada. British Columbia Douglas Fir is obtainable in every part of Canada at favorable prices.

For further information regarding British Columbia woods for use in mill construction buildings, address the **B. C. Lumber Commissioner, Excelsior Life Building, Toronto,** or the Chief Forester, Victoria, B. C.

BRITISH COLUMBIA HAS A WOOD FOR EVERY PURPOSE.



The Window Chute

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Open—It's a chute through which fuel can be put into the basement with ease and convenience.

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A Basement Window used for taking in fuel must be continually repainted, repaired and reglazed.

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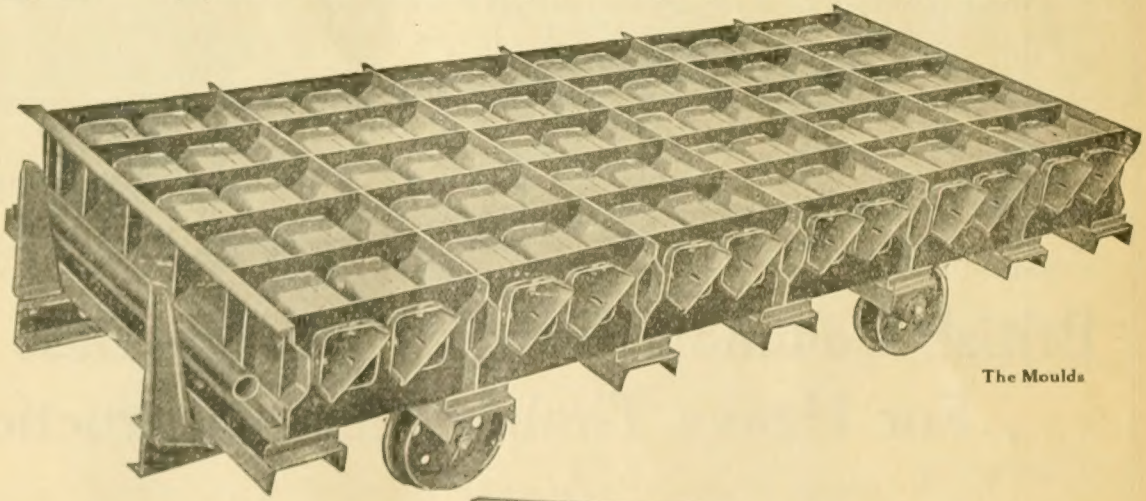
All Cement Workers, this is the Cement Age. No cement product has a brighter future than that of the cement block, providing it is properly made. The perfect cement block must be made from the wet mix or slush concrete. We manufacture the only successful multiple-mould, wet mix, block machinery in the Dominion. We are owners of a patent for the only successful process of facing a cement block with genuine granite and doing so at a cost in proportion to the rest of the block. We give exclusive right to your territory. Secure your territory now.

Remember:

The blocks cost less;

they sell for more;

you sell more of them.



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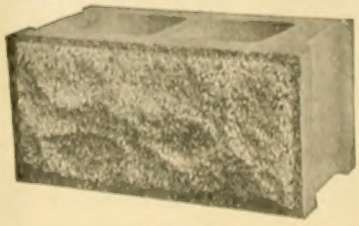
Write for Catalogue and Particulars

Mr. Blockmaker! What chance will you have with competition of this kind?

Send fifty cents and we will ship to you a sample block, with granite facing, freight prepaid.



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Sold in Ontario—Essex, York, Peel, Ontario, Halton and Wentworth counties; also fractions of Haldimand and Kent counties. *Quebec*—Ten counties and fractions of seven additional counties.

We also have plants successfully operating in Nova Scotia, Alberta and Manitoba.

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The Canadian Builder and Carpenter

C. G. BRANDT ADVERTISING MANAGER

Published First Week of Each Month

Subscription Rate, $1.00 per year in Canada, Great Britain and British Colonies; $1.50 to the United States

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The Commercial Press, Limited

32 Colborne Street, Toronto, Canada

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All who have read it says it's the best article on the subject ever issued.

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'Handy' Concrete Mixer
Capacity 40 Cubic Yards Per Day

Mixes all kinds of concrete, mortar or plaster. Just the machine for small jobs. Only weighs 1,300 lbs. Pays for itself in a few days' use.

Ask for price London 'Handy' Mixer No. 1-K-B

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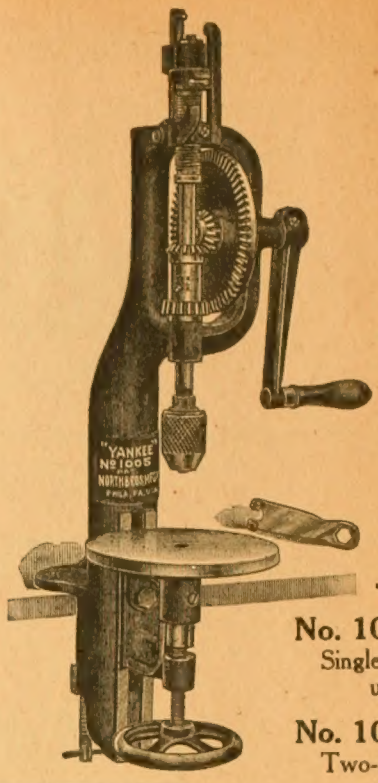
London *World's Largest Manufacturers of Concrete Machinery* Ontario

Do not fail to see our exhibit at the Western Fair.



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Single-Speed Drills
up to ¼"

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Two-Speed Drills
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"YANKEE"
BENCH DRILLS
With Automatic Friction and Ratchet Feeds

The distinguishing features of this unique tool are its strength, convenience and rapidity of operation. The Friction Feed operates automatically in moving the drill quickly to and from the work, and changes to Ratchet the moment the drill begins to cut, and feeds no faster than the drill point will take. It must be seen to be appreciated. Your dealer can supply you.

Let us send you the Yankee Tool Book, showing the line complete. A postal brings it.

North Bros. Mfg. Company
Philadelphia, Pa.

ATTRACTIVE HOUSE BUILT OF STUCCO ON FRAME

AN architect at Moline, Ill., built for his own occupancy a house with which are shown in the accompanying drawings reproduced from "Concrete," some interesting features.

It is a stucco house on wood frame. A heavy waterproof building paper was placed over the sheathing, then 2-in. by 2-in. furring strips were put on 12 in. o. c. The metal fabric is 24-ga., painted, ingot iron, expanded metal. On this three coats of stucco were applied. The first coat is put on thin to get a perfect key over the lath.

The second coat is a thin coat of cement plaster, and over this is placed a waterproof stucco thrown on with a paddle. This waterproof stucco is a commercial product made with crushed stone and waterproofed white Portland cement. The owner says that the waterproofing is important in the stucco work because experiments have shown him that constant wetting and drying in ordinary cement stucco soon disintegrate it and cause trouble. He is a strong believer in the 2-in. by 2-in. furring strips rather than the thin furring strips in which dependence is placed on the building paper or the sheathing coming closer to the metal lath to key the plaster. He prefers to cover his lath by a careful application of the stucco and to have the additional air space which the 2-in. by 2-in. strips afford. He breaks up these air spaces by having occasional headers run across in the height of the work so as to stop the circulation of air. The house is very comfortable both in winter and in the summer months.

This house is very complete in many respects, although he plans an addition to give him a library and additional bedroom space, bath room and servant's room. The house is equipped with a vapor heating system and is piped for a vacuum cleaner plant. One ingenious device is in connection with the window boxes, which are watered by a pipe controlled from inside of the house. The house as it stands, the architect reports, cost $6,500.

Handsome Exhibition of British Columbia Woods

The British Columbia Forest Service have one of the outstanding exhibits at the Canadian National Exhibition. A builder said to the writer: "It is beautiful, artistic and original." A look at the accompanying illustration will show that the statement is quite conservative. The exhibit, which is in the Government Building has been visited and studied by thousands. In fact, during the first two or three days over 3,000 samples of woods were taken away and hundreds signed up to receive booklets and further information.

The main exhibit is on a very ambitious scale. It has a handsome facade with a front built up of solid Douglas Fir logs and heavy beam work. At the back the smaller exhibits are arranged in six divisions, each division being treated in a separate wood, as follows: (1) Western soft pine, (2) Western white pine, (3) Western red cedar, (4) Douglas Fir, (5) Western hemlock, (6) subdivided into two containing Western larch and Western spruce.

Each section is thus treated in a separate wood, with

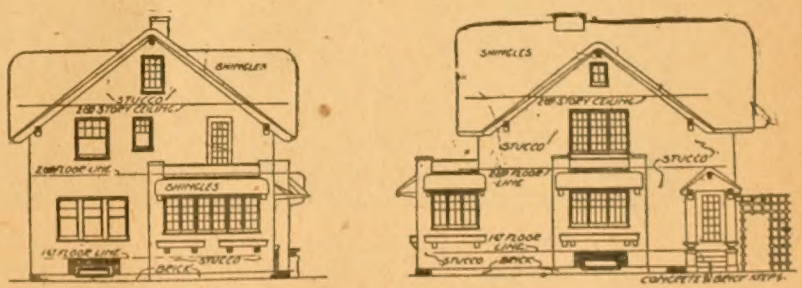


Fig. 2.—Front and side elevations.

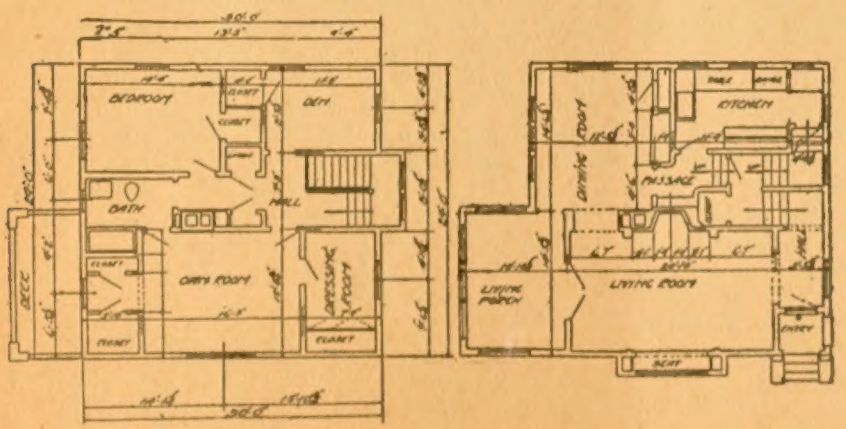


Fig. 1.—Floor plans.

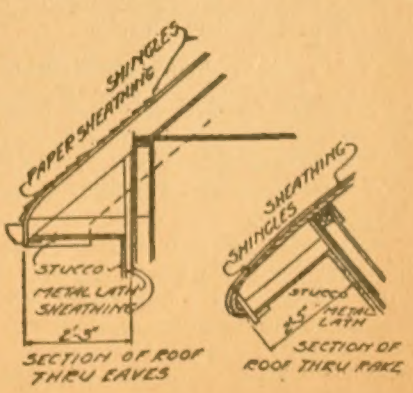


Fig. 3.—Roof details.

beautiful panelled backgrounds and sub-divided into different finish, oil, stain, varnished, polished and waxed, showing the adaptability of wood to any forms of finish. Panels finished with one coat of oil and one of varnish and slightly rubbed gives a finish like French silk with absolutely no raise of the grain.

In the various sections are woods applicable for every commercial use. Information is given on the best uses for each kind of wood and the best finishes and the right uses are demonstrated at the Exhibition. The recommended finishes are both simple and cheap.

All the woods shown are standard grade, taken from stock without making any special selections. They include every wood British Columbia produces in a commercial way. There was a full range of mouldings and turned stocks in all the woods. In all cases in addition to finished stock each wood was shown in board and plank in the various grades.

Every bit of material in the exhibit came from British Columbia. The flooring was Douglas fir, edge grain. Doors were shown of pine, cedar and fir. Three tables each 48 ins. diameter, three chairs and one settee illustrated the use of B. C. woods for furniture. The table tops were of rotary cut veneers. A red cedar fur chest received much attention.

All grades of British Columbia red cedar shingles including two roofs were included in this exhibit. Much interest was shown in the way to lay them and the nails used. Attention given to these two details double the life of the roof.

Products Exhibit

In addition to the exhibit described, there was another to illustrate the commercial uses of the woods. In the centre of the exhibit was a boat made in Vancouver, with unfinished lumber to show the wood used, finished oars and oars in the rough, boxes of all kinds including fruit boxes of B. C. spruce which is odorless, free from defects making it ideal for food purposes; paving blocks; tight and slack cooperage and wood stave pipe which is being used my many municipalities and power companies such as the Hydro-Electric at Eugene Falls. One wood stave pipe of Douglas fir was 9 ft. in diameter. There was also silo stock in fir and cedar, verandah posts and balustrades, window frames and a panel from a clear log 9 ft. diameter. The panel is from a log 9 ft. in diameter and which contained 17,000 ft. lumber to the first knot.

The whole layout was conceived, designed and erected by Mr. L. B. Beale, the genial British Columbia Lumber Commissioner. It is a credit to Mr. Beale and to his province. Many expressions were made of surprise at the diversity of the woods, the products and their application. In fact the exhibit was an eye-opener to Easterners who did not know such wood grew in British Columbia with such a diversified commercial utility. Much credit is due to Mr. Beale who has been so energetic in producing such an excellent exhibit and in demonstrating the woods shown, the finishes and uses for various enterprises.

* *

Tile Walls as Snow Fences

Successful experiments have been made in Iowa in the use of hollow tile for snow fences, the results showing that such barriers will hold back about twice as much snow as the board fences. This barrier is made of six or seven layers of tile, the open ends forming the two faces of the wall, which is slightly serpentine to permit expansion. Wires are used for reinforcement. The tiles are molded in such a manner that air spaces extend through them at an angle of about 20 degrees. The tiles are so laid that all the air passages lie in a plane parallel with the earth's surface but those of adjoining layers lie at opposing angles. When the wind passes through this fence, these diverging openings form conflicting strata of air which neutralizes each other's forces so that it is comparatively calm at the leeward side of the shelter. This accounts for the large amount of snow that collects behind these shelters, which will last longer than wooden ones, and in summer may prevent the spread of fires started by passing engines.

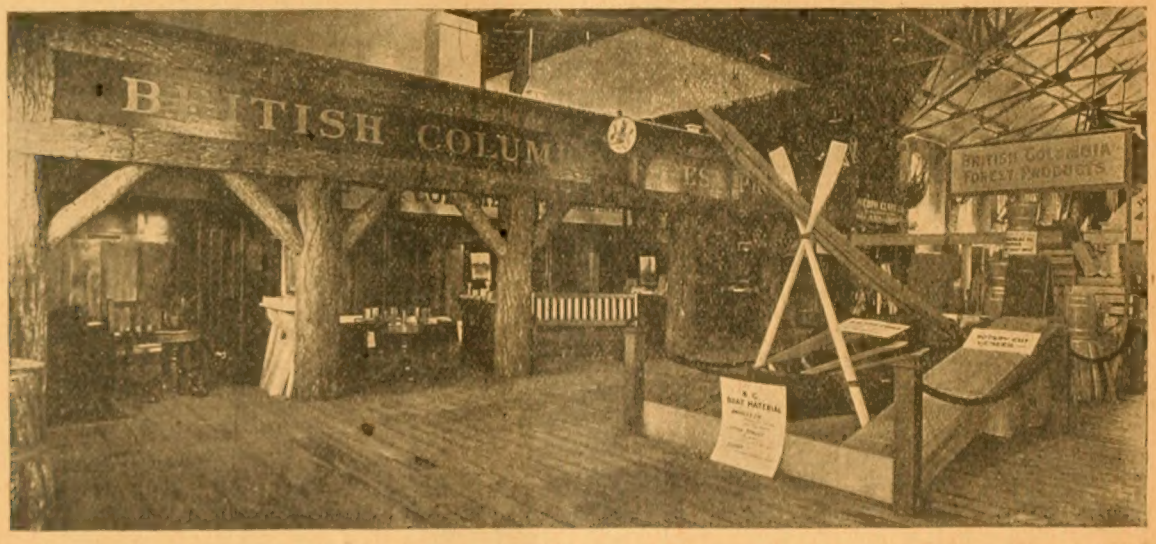
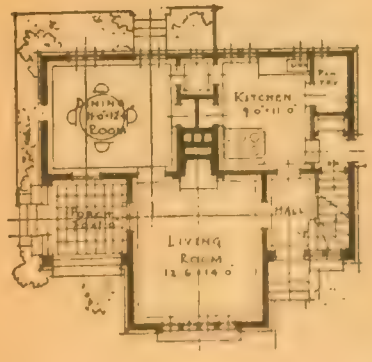


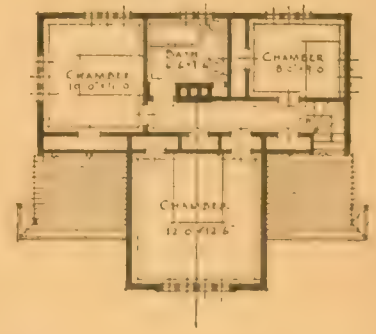
Exhibit of the British Columbia Lumber Commissioner at the Canadian National Exhibition, showing the main exhibit of B.C. woods, a section being devoted to each wood. In the foreground, to the right, is a special display of products now made from B.C. woods.

* *

To work lumber which has only been air-dried into cabinet work, or any other place where shrinkage will do harm, is bad business. Kiln-drying is essential to good joinery.



$3,000 PRIZE HOUSE



Designed by Maurice Feather, Watertown, Mass.

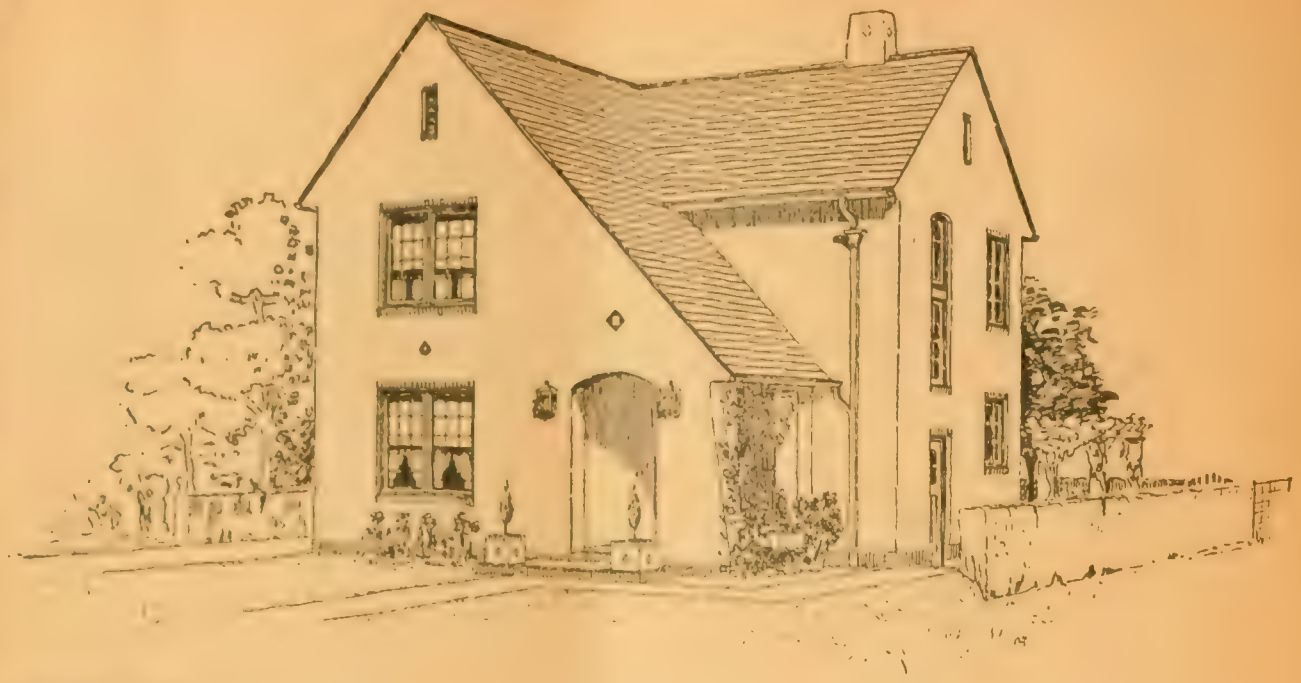
MAURICE Feather, 129 Langdon Avenue, Watertown, Mass., who obtained the seventh prize at the Cleveland Building Show, has evolved a house of exceptionally interesting exterior. The placing of the enclosed porch and entrance upon opposite sides of a front wing, the rather steep roofs and the single large chimney placed in the centre of the building give it the effect of bigness, which is a feature of this interesting design.

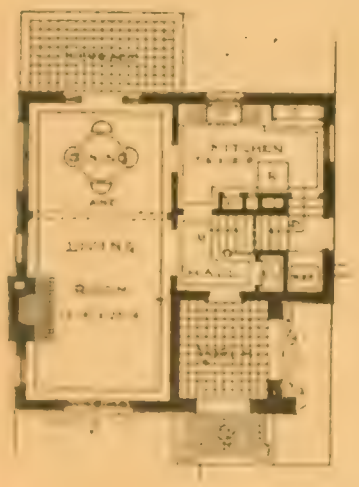
The interior arrangement is good from every point of view, and the rooms, both downstairs and up, are large and well lighted and ventilated.

This architect also chose stucco for his exterior finish.

Cubage of Seventh Prize House

Back Portion	30x12x29 =	10,440 cu. ft.
Living Room	13½x14x29 =	5,481
Hall	8½x8½x19 =	1,292
Porch	8½x8½x15	
	——— =	255
	4	
Steps, etc.		185
Total cube		17,655 cu. ft.
At $ .17 per cubic ft.		$3,000



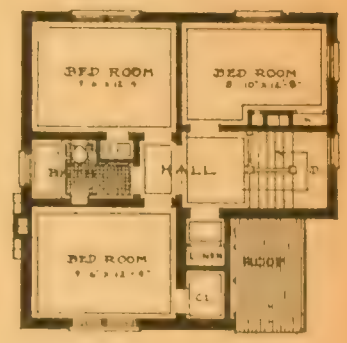


Sixth Prize House

By

Henry P. Whitworth, Architect,
Cleveland, Ohio

Submitted at
Cleveland Building Competition, 1916



LIVING and dining rooms are practically one in the plans of Henry P. Whitworth, 155 Carlyon Road, Cleveland, who captured the sixth prize. His house is of the cottage type and presents a beautiful exterior.

Within, the open effect of the downstairs arrangement of this house gives the impression of a much larger house than it actually is. The combined stair and entrance hall, with direct passage to the kitchen, show excellent use of the limited space available.

A careful arrangement of the second storey has resulted in three chambers, all of good size, with a conveniently arranged bath.

Hollow tile are specified as building materials.

Cubage

Living room portion, 14 ft. x 27 ft. x 28 ft.= 10584 cu. ft.

Kitchen wing, 13 ft. x 17 ft. 6 in. x 28 ft.= 6370 cu. ft.

Porch, 8 ft. 6 in. x 9 ft. 6 in. x 13 ft.÷4= 263 cu. ft.

Portion above porch 8 ft. 6 in. x 9 ft. 6 in. x 5 ft.=404 cu. ft.

Total, 17621 cu. ft.

At 17c per cu. ft.=$2,995.57.

Suggestions

Buff stucco on hollow tile.

Brick trim to be rough texture varying.

Shades of red and brown.

All exterior wood work including shingle [illegible] chestnut brown.

Carpentry and Woodworking

Gun Club Desk

The accompanying illustration of a handy gun club combination desk and chair will interest many sportsmen. This desk can be built for $5.00, figuring lumber and labor at market prices. It will soon prove to

Gun club desk.

be worth much more to any club using same, and carpenters could no doubt secure many orders for it by calling on the officials of clubs and soliciting orders.

Runners for Heavy Drawers

Large, deep drawers, intended for heavy loads, may be run on hardwood strips in grooves at the centre of the sides. This will not only insure easy running, but there will be no rattling or binding. A wide drawer side, even if fairly dry material is used, is apt to shrink, or, what is worse, swell in damp weather. With this

Runners for heavy drawers. The runners may be fastened as shown.

kind of construction it is possible to give the sides and front sufficient play, top and bottom, to take care of expansion, and any contraction will not interfere with the smooth working of the drawer.

Sides should be from ⅝ to ⅞-in. thick, according to size. Care should be taken that the drawer is just a trifle longer in the back than in the front, never shorter, and that the straight runners fit freely, not loosely, in the clean-cut grooves. A bit of hard castile soap, rubbed in the grooves, will greatly help matters. The runners should be from 1½ to 3-in. wide and may be fastened as shown in sketch.—Wood-Worker.

Fillers for Cracks in Floors

Now that the use of rugs on painted or varnished floors has become almost universal, the painter is frequently called upon to fix up an old floor to prepare it for painting or staining. One of the most difficult parts of the problem is that of filling up the wide cracks that have been caused by the shrinkage of the wood, so that the filler will "stay put." Various crack fillers have been put upon the market, and some of them are quite satisfactory and may be used by the painter with the assurance that if directions are carefully followed, the results will be pleasing to his customers, but it is not always possible to obtain these prepared materials at the local dealer's store at the time they are wanted, and the quantity required for a single floor is usually too small to send a special order to the distant manufacturer or jobber. Therefore, says a recent issue of the Painters Magazine, we feel that a few recipes for crack fillers that can be prepared by the painter, and which are said to be satisfactory, will be appreciated.

The following method is given by H. B. Brewster, a well-known master painter of Newark, N. J., as one that has always given perfect satisfaction and which will stand hard usage without loosening from the cracks. He takes a cheap varnish and stirs in plaster of paris gradually, until it gets to the consistency of putty. For small cracks he does not make it as stiff as he would for the wider ones. He cautions against putting either turpentine or dryer into the filler —just varnish and plaster, nothing else. The material is worked just like putty and pressed into the cracks in the same manner as putty. It is much slower drying than plaster and may be kept soft some time if kept in a sealed can. While he says that he uses cheap varnish in making this crack filler, better results would probably be obtained from the employment of a fairly good varnish.

The Floor Should be Well Cleaned

In using the above, or any other crack filler, it is important first to thoroughly scour the floor and allow it to become perfectly dry, and to clean the cracks entirely free from dirt, otherwise there is likelihood of grease adhering to the sides of the cracks, which may prevent the filler from firmly adhering.

A good linseed oil and whiting putty may be used as a crack filler and this is improved by adding to it some dry white lead. Enough raw sienna or other coloring matter to make it match the floor should be employed where the floor is to be stained and varnished. For painted floors it will not be necessary to color the filler.

The filler must be pressed down firmly into the cracks, smoothed down by wetting the putty knife with

turpentine and allowed to dry hard and firm, when the surface should be sandpapered.

Before using any putty mixture in filling cracks it is well to give them a coating of linseed oil. Boiled oil is recommended by some practical men.

For filling cracks wider than a quarter of an inch the following has been recommended:—Use a mixture of glue size, whiting and fine sawdust, with enough coloring matter to tint it to match the floor boards, made into a putty-like mass and applied in the same manner as ordinary putty.

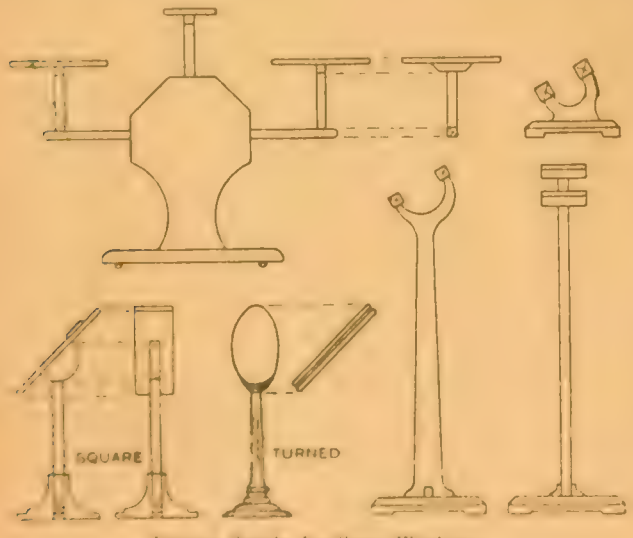
A Good Filler from Blotting Paper

Another method that is said to be good is to soak blotting paper in water until it can be squeezed out and kneaded into a fairly stiff mass with glue size and whiting. This, also, should be colored to match the floor boards. It is claimed that none of these fillers will shrink if pressed down firmly into the cracks and permitted to harden.

Another formula consists of a mixture of whiting and glazier's putty, to which blotting paper soaked in water is added, and the whole mass well kneaded together with some brown japan and a little turpentine well pressed into the joints with an ordinary knife.

Stands for Window Displays

IN passing the downtown stores, did you ever notice the number of display stands used? You can make stands and pedestals of hardwood, properly balanced in design and finished to bring out most effectively the beauty of the grain. Such stands are not

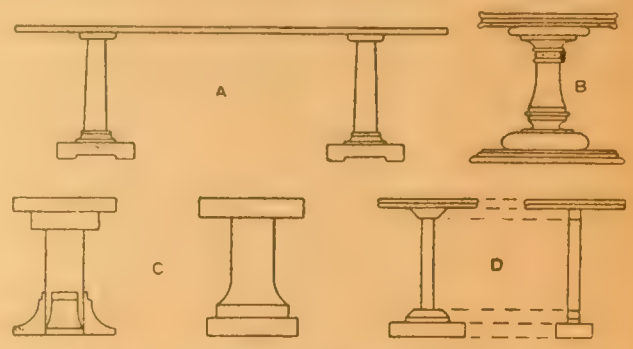


Display Stands for Store Windows

only a credit to the store in which they are placed, but to the man who made them.

The making of these stands enables carpenters and builders to profitably work up a lot of good clear hardwood cuttings that otherwise would eventually find their way to the furnace room. It is especially a source of profit for little one-room shops that cater to small, odd work.

It is to be regretted, however, that in some windows there are awkward-looking stands covered with cheap paint—white, yellow or blue. Very often this is the fault of the wood-worker. The merchant or his decorator, not exactly sure of what he wants, orders some stands, and the shop man, instead of having an eye for the artistic and his own reputation, thinks only of making some quick, easy money, so he unloads a hastily-made, clumsy-looking article on to the merchant. You may be sure this is the last "dig" the wood-worker gets at the merchant, for when the latter tires of the awkward wooden stands he no doubt sends away for "something artistic," made of polished nickel or brass,



or perhaps a japanned or gilded metal. A "holler" often goes up about patronizing home industries, but who is to blame?

Of course there are cases when the merchant orders something cheap. If he calls at the shop it would be well, while taking his order, to call his attention to the great difference and advantage of a grained wood, even if only stained, over a painted article; also, the great difference a few details in design will make. If he really wants something cheap and you know it is for a window display that will show, give him the most you can for his money, in the way of design at least. That old saying, "the good you do will come back to you," is only too true in this case.—Wood-Worker.

Illustrations for Last Month's Articles

When the August issue of The Canadian Builder and Carpenter went to press the Editor who followed the usual system in preparing the copy for that number was absent from the office. The articles were placed in the right departments but unfortunately the cuts were omitted from the various articles in the "Carpentry and Wood-Working Department."

New Idea in Weather-Boarding

We give the illustrations herewith. Fig. 1 shows the cut to illustrate the article on page 20 of the

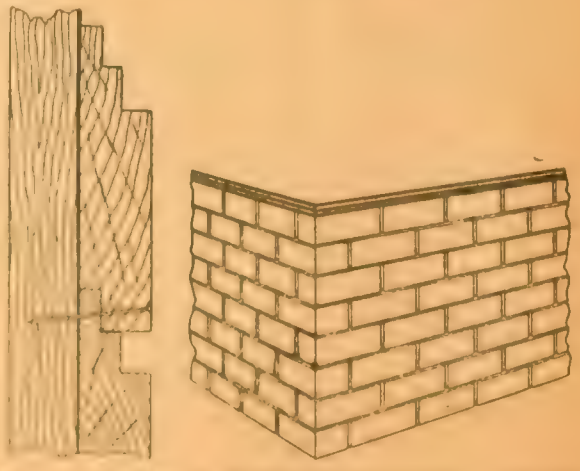


Fig. 1. A new idea in weather boarding—elevation and section of wall

August issue, "A New Idea in Weatherboarding," in which T. C. James describes the latest offering, weather boarding of standard thickness, a narrow strip of lumber, dressed on the inside instead of the outside, shiplapped at the joints and grooved lengthwise and crosswise, so that the finished wall is in imitation of brick in outline.

The lumber is ¾ inch thick, rough on outside to imitate brick. Cross grooves are cut ½ inch wide and 5-16 in. deep.

This class of siding is put up with a mitre joint at the corner. The end jointing is practically all done

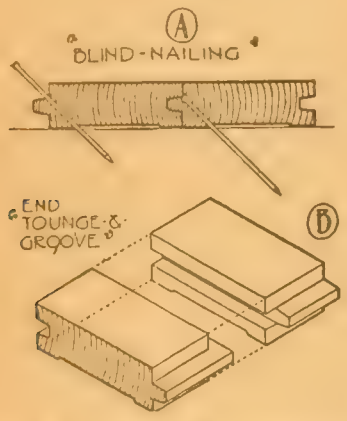


Fig. 2. Proper method of laying oak floor.

in the cross-groove, so that short pieces may be used without the end joints showing much. In laying it up it is of course arranged to have the cross-groove break joints, as in the laying up of brick in a wall. The usual method of finishing off this class of work is to paint the wall face a brick red, then paint the groove which imitates the mortar joint, black. A sheet metal stencil or brush guide fits snugly into the groove and makes it easily practical to paint the groove rapidly and without smearing the outer surface with paint.

Proper Methods for Laying Oak Flooring

Figs. 2 and 3 illustrate the article on "Proper Methods for Laying Oak Flooring," on page 19 of the August issue of The Canadian Builder and Carpenter. When laying oak flooring the sub-floor should be thor-

oughly [illegible] and it is well to use a damp-proof paper and [illegible] results are desired, a heavy deadening felt is recommended.

The sub-floor should be of serviceable wood, but not less than ⅞ in. thick, dressed one side in an even thickness. Sub-floor [illegible] sailed securely to the joists, but not driven too tight together, so as to permit it to swell, then bulging; four-inch to six-inch strips are preferred widths for sub-floors.

When starting with the first oak flooring strip, it is well to leave at least ⅜ in. for expansion space between the first strip and the base-board, and likewise at the other end of the room, as there is more or less expansion and contraction in all kiln-dried oak flooring.

Oak flooring should always be laid at an angle to the sub-floor and after laying and nailing three or four pieces, use a short piece of hardwood 2-in. x 4-in. placed against the tongue and drive it up with a heavy hammer.

The nailing of oak flooring is very important. All tongued and grooved oak flooring should be blind-nailed. The best flooring made can be spoiled by the use of improper nails. The steel cut variety is recommended for 13-16-inch stock—use 8-penny nails every sixteen inches; for ⅜-inch flooring—use 3-penny wire finishing nails every ten inches. If even better results are desired, the nails can be driven closer.

Scraping oak floors is always done in the better grades, or in all homes where people dwell. In order to get the best results for a nicely finished surface, it is best to scrape it. This scraping process can be done by the ordinary scrapers, such as used by cabinet makers, or by one of the many types of power or hand machines that are generally used by contractors and carpenters. Always scrape lengthwise of the wood and not across the grain. A floor properly scraped looks very smooth, but it should be thoroughly gone over with No. 1½ sand paper to obtain the best results in finishing. After this the floor should be swept clean and the dust removed with a soft cloth.

The floor is now ready for the filler which should be put on as soon as possible after the laying work is finished, as the filler fills up the pores of the wood and keeps it from shrinking.

For the complete articles see the August issue.

* *

New Foreman—"What are ye doin' there, Rafferty?"

Rafferty—"I'm oilin' the wheelbarrow."

New Foreman—"Well, I'ave it alone. I'll do it myself. What do you know about machinery?"

Little Winnipegers with a string of Nipigon trout. (Courtesy Canadian Northern Railway.)

Brick Work and Plastering

Advantages in Use of Commercially Hydrated Lime Over Ordinary Slaked Lime

Slaking Lime.—Everyone is familiar with the fact that when quicklime is treated with water a violent action takes place, the lumps of lime break up, heat is generated, steam is given off, and after the action is completed, a paste or putty remains—the ordinary lime putty used for mortar. The fact that quicklime has changed its form from dry lumps to a wet paste and that heat has been generated prove that a chemical reaction has taken place; or that quicklime has combined chemically with water. It is a scientific fact when any chemical change or reaction occurs exact amounts of the material are involved. In the chemical change which takes place when lime is quenched with water definite amounts of lime and water are involved; in slaking lime an exact amount of lime unites with an exact quantity of water, forming an exact amount of hydrated lime If after the slaking only sufficient water is present to satisfy the calcium oxide (lime) then a dry powder will remain. This powder is hydrated lime and it differs from the original quicklime and from pulverized lime in its behavior towards water. When water is added to hydrated lime no heat is generated nor does the material slake, thus indicating that water has no further chemical action on the hydrate.

What is Hydrated Lime?—Hydrated lime of commerce is the dry powder resulting from the treatment of lime with sufficient water to satisfy the chemical requirements of all the calcium oxide.

Necessity for Exact Proportions of Lime and Water.—In the foregoing emphasis has been laid upon the fact that precise amounts of lime and water react chemically. In other words, 1 lb. of lime requires a certain definite amount of water to form a perfect hydrate. If too little water is used in quenching the lime in the process of manufacture the lime will be burned in slaking and free lime, or lime which is not combined with water, will be present in the hydrate, rendering the material unsound. Plaster made from such hydrated lime will later pop and pit, due to the gradual slaking of the free lime by the moisture present in the atmosphere. Further, mortar made from such unsound hydrate generally works tough and non-plastic. The free unslaked lime, when present to any considerable extent, will dry out the mortar, rapidly decreasing its strength and causing it to crumble. Free lime in hydrated lime is a dangerous ingredient and one which will always give trouble.

If too much water is used in the preparation of hydrate the material will be damp and wet, rendering it difficult to handle.

Obsolete Methods of Manufacture.—In the past, three methods were used to produce hydrated lime:

(1) Small pieces of lime were placed in a basket and immersed in water for a few minutes, until slaking began, when they were withdrawn and placed in a heap in order to conserve the heat and prevent escape of the vapor; the material swelled, cracked and became reduced to a dry powder.

(2) Lumps of lime were placed in a heap and wet at intervals until the mass was equally moistened throughout. The slaking proceeded as in the first instance.

(3) Small pieces of lime were exposed to the air for a number of months and the lime absorbed both water and carbon dioxide from the atmosphere, falling to a dry powder. The powder consisted of dry sub-carbonate of lime, containing about 10 p.c. to 11 p.c. of water.

These three methods of dry-slaking lime were crude and unless the greatest care was exercised, the resulting product contained particles of unslaked lime. The hydrate produced by these methods was generally short and possessed poor sand-carrying capacity; in fact, hydrated lime made by any of the above methods was suitable for use in agriculture only and such hydrate should not be confounded with hydrated lime manufactured by modern methods.

Modern Methods of Manufacture.—The modern method of manufacturing hydrate depends upon the addition of a definite amount of water to a predetermined amount of lime. By no other method is it possible to produce a hydrate which will contain sufficient combined water to satisfy the demands of the calcium oxide (lime) present. It is of the upmost importance that all the calcium oxide be in combination with water, otherwise the hydrate will be unsound and unsuitable for building uses. That all the lime be satisfied with water will be insisted upon in any specifications which may be drawn for hydrated lime to be used in the building trade, and it is vital for each manufacturer to recognize that the formation of hydrated lime involves a chemical change requiring the presence of exact amounts of lime and water. Since the process is chemical it requires the same careful supervision as any other chemical process, such as the manufacture of Portland cement. The production and use of hydrated lime have been more retarded by the manufacture of only partly hydrated lime than from all other causes. Any method of manufacturing hydrated lime continually to produce a perfect product must be based upon weighing the lime used and measuring the amount of water added.

Advantages of Hydrated Lime

(1) From the Standpoint of the Manufacturer.—One of the great difficulties in connection with the manufacture of lime is the perishable quality of the product. Lump lime cannot be stored for any length of time without deterioration, thus making the operation of the plant dependent upon the season and the whims of the weather. Kilns must be fired up, damped down or put out, according to the season of the year and the con-

dition of the weather. This unevenness of operation results in a high unit cost. Since hydrated lime can be stored in bins in a manner similar to cement, it is possible to make the operation of the plant more nearly continuous, thereby introducing economies in the manufacture and reducing the cost. The manufacture of hydrate also means a more extended market, as hydrated lime can be used for a number of purposes for which quicklime is not suitable.

(2) Advantages to the Dealer.—Three principal advantages to the dealer are the ease in handling, less deterioration of the product, and the freedom from fire risk. These three facts alone should convince the dealer that it is more economical to handle hydrated lime.

(3) Uses of Hydrated Lime.—In general it may be stated that hydrated lime is suitable for any use in the building trade to which lump lime can be put, and it would appear that as soon as the material comes into general use, its advantages will be found to far outweigh any disadvantages. The use of hydrated lime does away with the necessity of slaking lime to a paste, thus saving the space required for the slaking bed as well as the labor of slaking. By the use of hydrate it is possible to proportion the mortar so as to have exact quantities present, since this form of lime comes into the market in convenient packages of known weight. This point is always appreciated by the architect and engineer, as it is a well known fact when lump lime is used, as much sand as possible is added with the result that the mortar is lean and possesses little strength. If hydrated lime is correctly manufactured and the particles of core removed by some process of separation, the resulting product will possess a higher grade of purity than the original lime from which it is made. The product will also be more uniform and these two facts appeal strongly to all users of lime.

Mortar made from Hydrate is Stronger than that made from Slaked Lime.—In June, 1910, the writer presented the results obtained from an extended series of tests on mortars made from both hydrated lime and lump lime to the Am. Soc. for Test. Mat. One of the most important conclusions drawn from these investigations was that the mortar produced from hydrated lime was stronger than that produced from the corresponding lump lime slaked to a paste. This conclusion was to be expected, since it is possible to manufacture hydrated lime by mechanical means under good chemical control, which is more thoroughly slaked than it is possible to slake lump lime on the job. With lump lime, the user is always dependent upon the thoroughness of slaking, and it is well known that unless the lime paste is run off and stored for some considerable time, there is no assurance of complete and thorough slaking.

Practically all those who have investigated the strength of lime mortars have recommended the use of hydrated lime in place of lump lime. In Bulletin No. [illegible] of the Bur. of Standards, the following statement is made: "The proportion of impurities in hydrated lime is generally less than in the lime from which it is made. In building operations hydrated lime may be used for any purpose in place of lump lime, with precisely similar results. The consumer must pay the freight on a large amount of water, but the time and labor required for the slaking are eliminated and there is no danger of spoiling it either by burning or incomplete slaking * * * * For all building purposes hydrated lime is to be preferred to lump lime. By its use the time and labor involved in slaking may be saved and the experience of the laborer is eliminated as a factor in the problem."

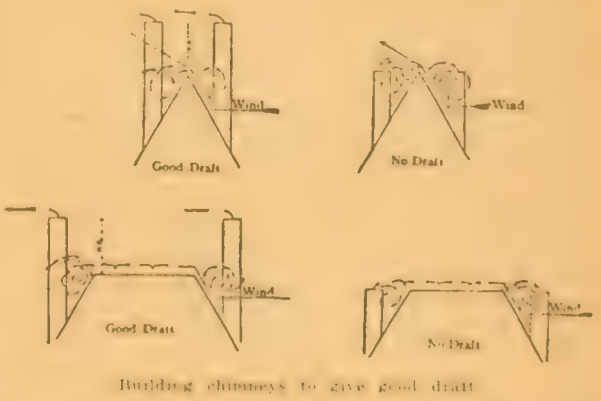
If the use of hydrated lime in the building trade is to be increased, this can be brought about only by the manufacturers of hydrate preparing and marketing only such material as is sound and contains no free lime. There is an increasing demand for hydrate for use in concrete to render the material more plastic and dense. Hydrated lime can be advantageously used in all cement plaster and stucco to make them work smoothly and give a more pleasing color. In all these uses the soundness of the hydrate is the paramount requirement. No one would think of using unsound cement—why, then, should they expect to use unsound hydrate?

The market for hydrated lime is present and a concerted action on the part of the lime manufacturers to exercise the care necessary to make a thoroughly hydrated lime will result in a more extended use of the material. It is to be hoped that the manufacturers will direct their energies along this line.—E. W. Lazell, in Cement and Engineering News.

Building Chimneys to Give Good Draft

Here are some rules on draft necessary for good draft. They should be familiar to builders:

1. That the flue-stopper is in its place.
2. That the chimney is clear and has a good draft at pipe hole. Many chimneys are made too low and draw better when a "smoke-stack" is put on them.
3. That the pipe fits closely on the stove and in the chimney. No air should enter the chimney except that which passes through the stove.
4. That the pipe does not go too far into the chimney.
5. That no ashes from chimney get into the end of the pipe.
6. That there are no pipe holes open on the opposite side of the chimney, either above or below, and that



Building chimneys to give good draft

there is no unused stove with draft-slide open, leading into the same chimney.

7. Avoid having the pipe telescope at the elbow. If you have all these parts properly adjusted and well arranged, open the direct-draft damper and see if you can get a good fire in the stove, together with a strong draft. If the stove will not burn well then, the trouble is not in the stove, but above it.

If the fire burns well on the above direct draft, close the oven damper; then if it will not heat the oven and

bake well, please examine the flues and damper, and see:

1. That all the flues are open and clear, so that smoke can freely pass through them. In cleaning flues, many do not clean all the flues, and frequently push soot and ashes into back corners, and in that way stop them up.

2. Examine all the dampers in the flues and see that they close tightly, and do not get out of place.

3. Be sure that you know how the dampers operate, so they may not be opened when you think they are closed.

If you are trying a stove without a hot-water reservoir and have everything in good order as heretofore described, it cannot possibly fail in operation if you close the direct-draft damper and throw all the heat around the oven. Time should be given to get the oven hot before trying to bake.

If you have a stove with a reservoir, be sure that the damper (if one is in the stove) to force the heat under the reservoir is closed, so that all the heat must go around the oven. Many reservoir styles have two dampers, and in that case both should be closed.

We have known many persons who have tried to use such stoves with the damper under the reservoir open when they thought it was closed. On that account the oven heated too slow, but worked fast enough when they closed the damper.

It is possible that the draft of the chimney is so strong as to carry the heat so rapidly around the oven as not to be absorbed by the plates, and the oven fails to heat sufficiently from that cause. A damper in the pipe will relieve this.

* *

Simple Test for Porosity of Brick

A simple test for brick porosity consists of holding the tongue lightly in contact with the brick, says a writer in the London Building World. If a distinct suction is felt the brick will be very porous. If no appreciable suction is apparent but the moisture rapidly dries from the surface of the brick, it is but slightly porous.

Bricks made by the semi-dry process—that is, by compressing the clay in the form of a damp dust—absorb only about 5 per cent. of water, though they vary greatly in this respect. Engineering brick absorb less than 1 per cent. of their weight of water. For all ordinary purposes, therefore, it is not desirable to designate bricks which absorb less than 15 per cent. of their weight of water, on immersion, as particularly porous.

During the last few years the use of hollow blocks and hollow bricks has extended rapidly. These are much lighter than solid bricks and effect an important saving in railway carriage, but they must be distinguished from porous bricks. The weight alone is not a sufficient guide, as hollow bricks are now made which are indistinguishable in appearance from solid bricks. When cut or broken their hollowness is easily seen. On the continent porous bricks are defined as having a weight which is notably less than common bricks, but this definition will have to be abandoned now that hollow bricks are made in large numbers.

The large hollow bricks used in fireproof floors, etc., are usually made of highly porous material. This not only reduces the cost of carriage and the weight of material in the structure, but it facilitates the manufacture of bricks accurate in shape and free from twists.

To Drive a Nail in Plaster

If you wish to drive a nail in a plastered wall first put it in very hot water until it is thoroughly heated, says the Woman's Home Companion. You can then drive it in clean without breaking or chipping any of the surrounding plaster.

"Cold nails will make the plaster fall—
Don't try to drive 'em in.
Just boil your nails—approach the wall,
And hammer 'em like sin!
The plaster will not budge a mite
Though swatted like the dickens—
Hot nails are certainly all right,
Like incubator chickens."

* *

Alabastine Co., Paris, Now Sole Owner of Elora White Lime Co.

The Alabastine Co., Paris, Limited, recently purchased the interest of other parties in the Elora White Lime Co., and now has sole ownership and control of the business. The plant at Elora is in charge of Mr. J. F. Cameron, Superintendent, and is under the general supervision of Mr. A. J. Parkhurst, general superintendent of the Alabastine Co. The sales are handled from the head office of the Alabastine Co., Limited, Paris, Ontario, to whom all inquiries and orders should be addressed. The plant is operating to full capacity on orders which engage the entire output several weeks in advance, and dealers should anticipate their requirements in order to insure getting delivery of the material as wanted.

The recent rulings of the customs department greatly increased the amount of duty charged on imported Hydrated finishing limes so that those who formerly used lime imported from the U. S. are now using the Canadian made lime and the demand for the home product at present is very brisk. The manager of the Alabastine Co. is R. E. Haire. Mr. H. J. Haire is sales manager.

* *

Meerschaum as a Building Material

Even the most aesthetically inclined of our American millionaires would hardly consider the luxury of living in a palace built of meerschaum as within the range of their fortunes, yet there are many unpretentious houses of this material in the Spanish town of Vallecas, near Madrid, where a coarse variety of this substance is to be found.

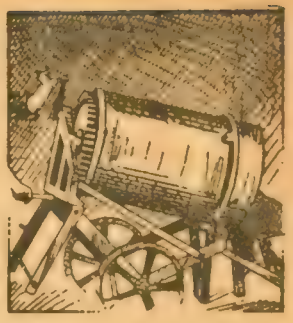
MILTON BRICK

Have you seen our "Milton Rug Brick"? If not, call at our Toronto Office, or write for samples. It's to your interest as well as ours that you see this beautiful range of brick.

Toronto Office: 50 ADELAIDE STREET W.

Head Office: MILTON, ONT.

Concrete Department



Concrete Septic Tanks*

As usually constructed, the septic tank is built in two compartments as shown in Fig 1. Slight modifications of this design are often made, none of which, however, departs from the fundamental principles shown. The house wastes, after they leave the house plumbing, enter the first compartment. In this compartment the action of the bacteria spoken of takes place and the solids and semisolids are digested, so to speak, by this bacterial action.

The second compartment is frequently referred to as the "siphon chamber." It will be noticed that there is a device built into the floor of this compartment and connected to an outlet pipe. This device is called a siphon and automatically empties the contents of the compartment when they have reached a certain level by overflowing from the first compartment.

After having remained in the first compartment a sufficient length of time the solid matter which the wastes contained upon entering this compartment has been destroyed, and the liquids overflow into the second compartment or siphon chamber.

It will be noticed in the design shown in Figure 1 that the first compartment contains two baffle boards extending in part above and below the level of liquid in this compartment. These are necessary to prevent the rush of incoming sewage from the house plumbing system for distributing the scum which forms in this tank after it is in effective operation. This scum must not be disturbed nor be allowed to flow out of this compartment, because it is the home of the bacteria which do the first work towards changing the nature of the sewage; namely, destroying the solid and semisolid substances which are carried into the tank along with the liquids.

Two methods are commonly depended upon to dispose of the discharges from the siphon chamber resulting from the frequent emptying of this compartment due to the automatic operation of the siphon. Wherever the nature of the surroundings is such that a certain area of ground can be set aside for the purpose, surface, or broad irrigation, as it is called, is satisfactory. This means allowing the wastes delivered from the siphon compartment to flow upon the land where they spread over the ground and are acted upon by sun and certain bacteria which live in the upper layers or portion of the soil.

The purifying power of the soil in this respect is due to what are called "nitrifying bacteria" which grow and multiply naturally in the soil and require air at least for their existence and work. Naturally, therefore, the soil cannot reduce sewage wastes to harmless compounds below a certain distance from the surface, governed by the depth to which air penetrates freely, and hence encourages the life and development of these nitrifying bacteria.

In the final disposal of sewage by broad irrigation, it is of course necessary to select a field, or disposal bed as it is sometimes called, where the wastes will not be immediately washed into some nearby stream, thus contaminating the water. Fluids thus disposed of should be carried to the disposal field through a tile leading from the siphon connection, these tile being dense, nonporous and laid with sealed joints. The outlet should discharge into an open ditch, say about 12 inches wide by 6 inches deep, with laterals or side ditches at right angles to the main one, dug about 6 feet apart and with sufficient grade so that the fluids will quickly and easily spread over the whole area. This will prevent the soil at that portion of the field near the outlet from becoming clogged up, as would happen if a small area of the field had to receive and dispose of all the tank discharges. Where the volume of sewage exceeds a certain quantity, that is, more than results from the average household, it is sometimes advisable to arrange for two disposal fields that can be used alternately, thus allowing one to "rest" at intervals.

Another method of final disposal which is frequently

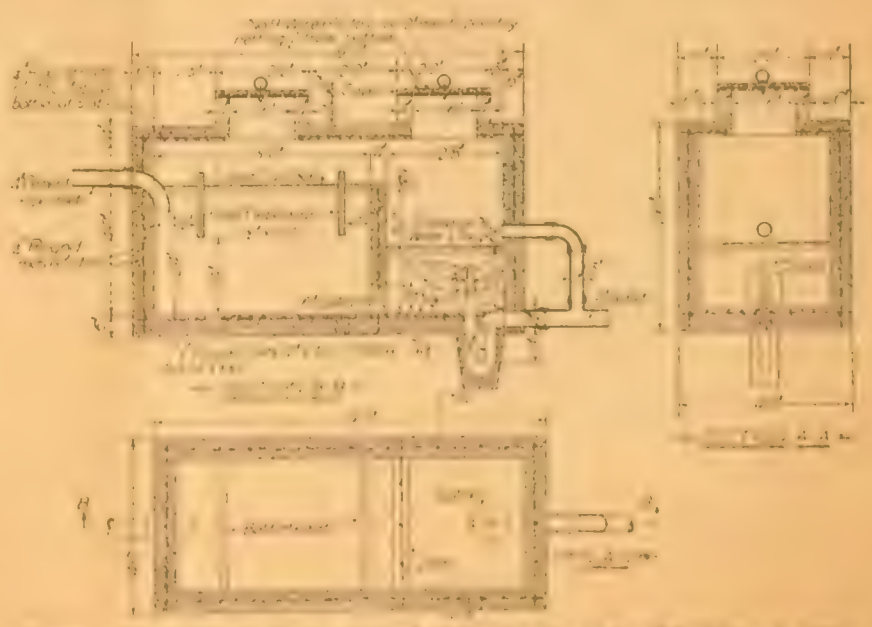


Figure 1. [illegible] siphon chamber.

*Article and cuts were furnished by the Portland Cement Association, Chicago.

practiced consists of what is called subsurface irrigation. This means discharging the tank contents into lines of 4-inch drain tile, laid with open joints so that fluids may leach out of these joints and filter into and through the soil. Such a tile line should be laid with a grade not greater than 2 inches per 100 feet. To prevent soil from entering the tile line through open joints and thus clogging it up, the joints may be covered with flat stones or pieces of broken tile of larger diameter. All connections between the house and septic tank and from the septic tank to the disposal field

[illegible] concrete walls and floor of the tank shown in Figure 1 have been [illegible] and the cover slab set in place, the construction would appear similar to that shown in [illegible] was taken immediately before the cover slab was cast. The vertical reinforcing rods have been purposely cut longer than necessary for the walls so that they [illegible] and, in part, form the reinforcing for the cover slab when it is cast.

should be made with tight joints. This means that in the subsurface disposal system there should be at least 200 feet of the tile laid from the siphon chamber before the open-joint laterals are laid.

Figure 2 shows the general scheme of laying tile lines where sub-surface disposal is employed. As a rule final disposition by the subsurface method is best for the single residence if soil conditions are suitable. This system usually requires less attention to insure satisfactory operation. Furthermore, the sewage is entirely out of sight at all times, and this also is desirable.

Experience seems to prove the desirability of designing a septic tank so that its capacity will not exceed that required for 24 hours' flow of sewage from the average household. Capacity is usually figured by estimating that this flow will range from 30 to 50 gallons per person per day. The depth of such a tank should be not less than 4 feet, but 6 or 7 feet would be better. The length should be about twice the width so that it will be possible to obtain as nearly a uniform velocity of flow through the tank as possible, thus avoiding any considerable disturbance of the scum. With these suggestions, anyone [illegible] easily figure the capacity to accommodate any given number of persons. It [illegible] be remembered that the required depth of the tank should be figured from the top of the partition separating the first and second compartments. Some builders recommend sloping the floor or bottom of the first compartment so that the sediment which gradually accumulates in this tank and known as "sludge" will naturally accumulate at one end of the tank, thus making easier the removal of this sludge when necessary to clean out the tank.

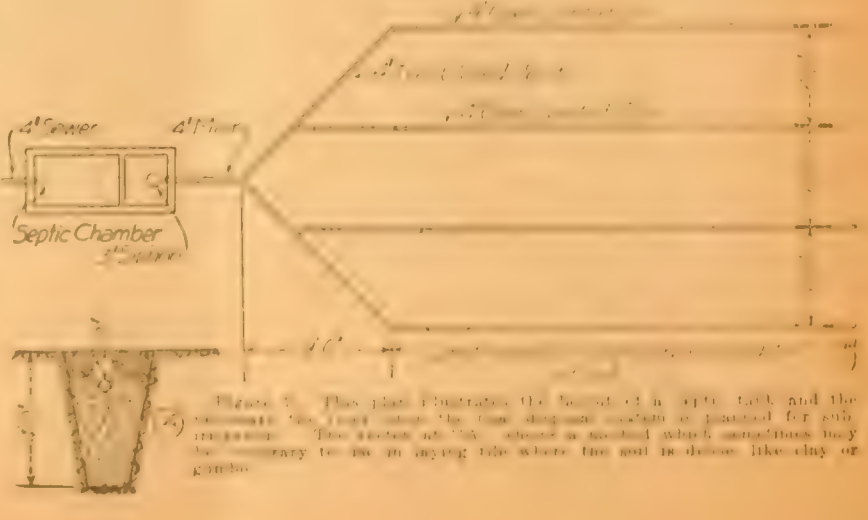
The capacity of the siphon chamber should be such that the siphon will operate to empty this compartment at intervals of from 4 to 6 hours. The nearer the siphon chamber is built to square form, the easier and more economical it will be to construct. For ordinary installations a 3-inch Miller Automatic Siphon may be used. These siphons have no moving parts and require very little attention.

Mixture for Concrete

Septic tanks can best be constructed of concrete, particularly because such structures must be tight, and if a 1:2:3 concrete is used this end will be secured. The mixture mentioned means 1 sack of Portland cement, 2 cubic feet of clean, coarse sand, evenly graded from the fine particles up to those which will just pass a $\frac{1}{4}$-inch mesh screen, and 3 cubic feet of clean, screened pebbles or broken stone, the particles of which vary in size from $\frac{1}{4}$ to $1\frac{1}{4}$ or $1\frac{1}{2}$ ins. Enough water should be used to produce a mixture of quaky consistency so that the concrete when placed will settle into all parts of the forms when slightly jogged or puddled with a spade or similar tool. Reinforcing, of course, must be chosen and used in accordance with the size of the particular tank. These details we shall be very glad to advise upon when you have decided upon the type and size of tank necessary to meet your requirements.

Domestic sewage disposal systems in which the septic tank has been used have sometimes proved unsatisfactory simply because a type of tank or method of final disposal was not chosen with due regard for local soil conditions. For this reason we advise those contemplating the construction of a septic tank to confer with their state or local health authorities, who through their sanitary engineers will be glad to advise as to the best system for each particular situation.

The experience of others is your best guide.



[illegible] This plan illustrates the [illegible] septic tank and the [illegible] the final disposal system is planned for subsurface [illegible] This system of tile should [illegible] sometimes may be necessary to [illegible] in laying tile where the soil is dense like clay or [illegible]

Patching Concrete Factory Floors

One of the principal objections often raised against the use of concrete finished floors is the difficulty and cost of successfully repairing places that become worn or damaged. For best results it is usually considered necessary to cut down the worn place at least 1½ in. into the unbroken concrete, under-cut the edges, clean out the dust and loose particles thoroughly, wash with a thin cement grout, fill in with a paste grout and finally float to a level surface a mortar of cement and crushed stone or gravel. The patch must then be kept moist for at least a week or ten days, keeping all traffic off in the meantime.

W. P. Anderson, president Ferro Concrete Construction Company, Cincinnati, Ohio, states that his company often uses a method of patching concrete floors which is cheaper and requires far less time than the method commonly used. Mr. Anderson's method requires the use of mastic material made from a mixture of asbestos fibre and rubber gum. This mixture is applied with a trowel after thoroughly cleaning the damaged surface. Very little cutting of the old concrete is necessary, other than to break off loose particles. The gum can be worked to a feather edge, it is stated, so that it will readily join with the undamaged concrete surface and eliminate the under-cutting required with the old style of patch.

A patch of this sort can be opened to foot traffic within a few hours and to heavy traffic within a day or so. It is thus possible to repair a much used portion of a mill or factory floor almost overnight. The cost varies with the size of the patch, but is given as 16 to 18 cents per square foot.

A Products Manufacturer's Sales Campaign

A products manufacturer in the centre of a fairly prosperous farming community bought an outfit to make concrete posts. He made a lot of good posts and piled them in his yard. They stayed there. Nobody in particular knew he was making good concrete posts. So nobody came to buy.

Then one day somebody came along with an idea and here's the way it worked out:

The products manufacturer put three posts in the back of his car and went out to call on prosperous farmers in his county. He drove into one farm gate after another and asked the farmer if he didn't find that wood fence posts went to pieces rather fast; showed him the posts he brought along; got him interested in the idea of using a material that would stay put, and as he drove away he told the farmer to drive in to his factory some day and he'd give him 10 posts for a trial. The products manufacturer called on 20 farmers scattered all over the county, and then he went back to his work. One by one the 20 farmers came in to the factory, each to get his 10 posts. Incidental, but very important in this sales campaign, is the fact that the farmer saw the posts in the making and also saw other concrete products, feeding boxes, watering troughs, building units, vases. The products manufacturer reminded each farmer before he drove away of the one condition attached to the gift of 10 posts—that they be put into use at once, with wire strung on them. The P. M. suggested that if the farmer could use the posts along the front of his property it would not only improve the front but would be a better advertisement for the post, and of course the P. M. told the farmer very frankly that his object was advertising. When a farmer got home with his posts he replaced a rotten wooden post here and another one farther on and so on, and fastened his wires. He was impressed by the fact that the few trim, substantial concrete posts looked so good that the old wood posts looked very bad in comparison. As time went on, the comparison was more marked. Eventually he went in and bought more concrete posts to finish out a line and make it look uniformly good.

To come quickly to the moral of this true story, it must be recorded that the products manufacturer gave away about 200 posts—total actual cost to make less than $40. He got 20 prosperous farmers to come and see his factory. Every one of the 20 became a customer—buying not merely posts but buying other concrete products, the existence of which in his own locality he otherwise might never have known. And that isn't all. In having a trim, orderly factory to show, the products manufacturer did a lot to build up a general confidence in the things he made. When he introduced 20 farmers to his plant and showed them what and how things were made there, he set loose 20 casual salesmen—so that 20 customers were multiplied by the number of their friends and acquaintances and also by the passers-by who saw that Jones, a prosperous farmer, had replaced his wood posts with concrete.—Concrete.

Concrete Garage

Concrete units when well made and carefully finished make an excellent construction for a garage. The illustration shows garage of plain-faced slabs built by W. E. Wagner, Toronto, Ont. The construction is very light and strong. It consists of thin concrete slabs set on edge and tied by concrete studs 2½ in. x

Concrete garage of W. E. Wagner, Toronto.

6 in., poured in place. Slabs are reinforced with wire mesh and left with a rough texture. These units have the effect of very large blocks. The roof is of metal tile.

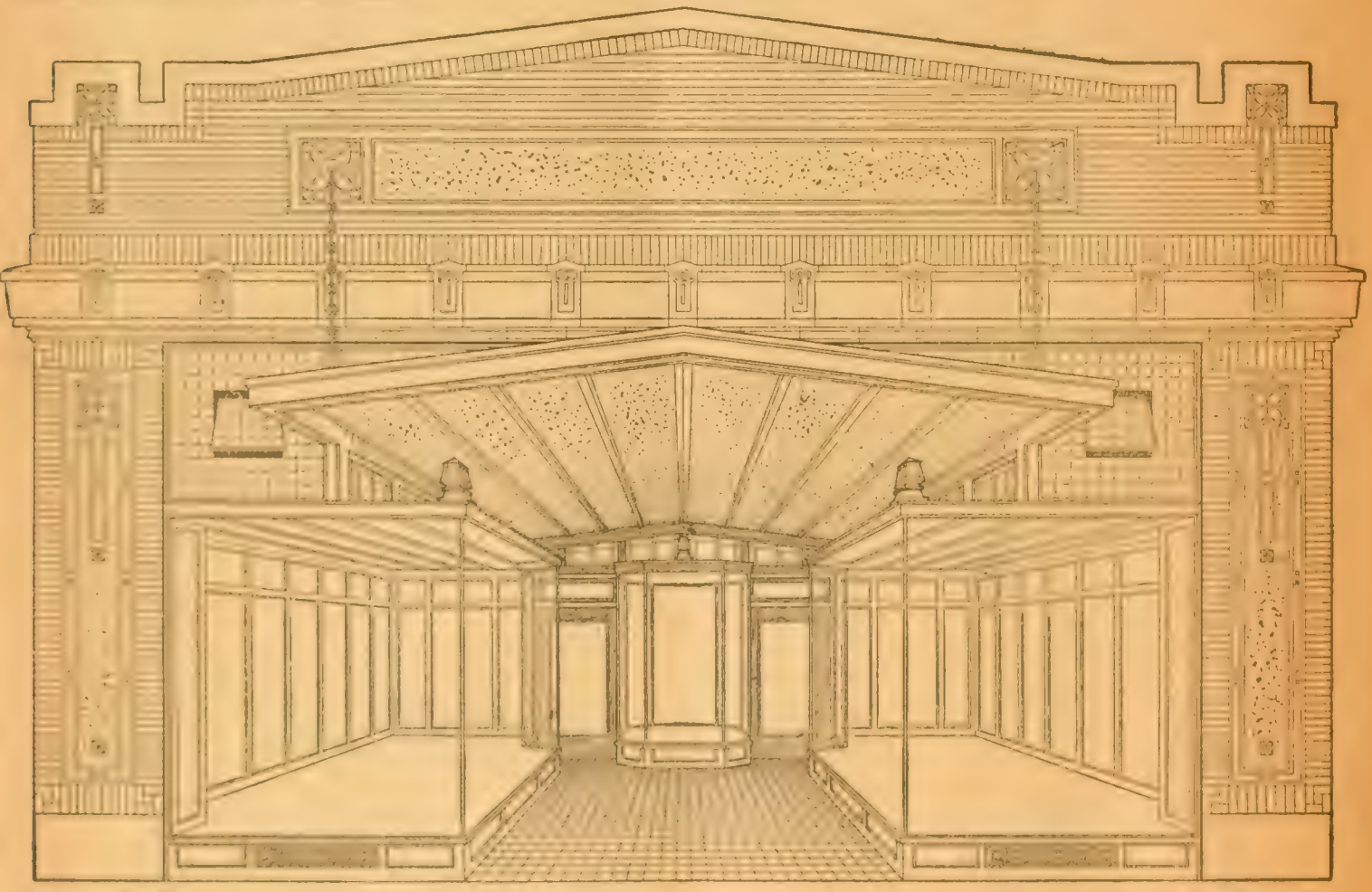
Things that come to the man who does nothing but wait are apt to be mildewed.

Modern Store Fronts

Their Design and Construction

Kawneer Manufacturing Co., Limited
Guelph, Ontario

THIS DEPARTMENT is designed to be of the greatest practical benefit to contractors and builders. Special information on any subject pertaining to the design or construction of store fronts will be gladly furnished. You should have a copy of the Kawneer illustrated booklet on modern store fronts, which is sent free to any architect, contractor or builder who writes for same.
Under this heading, every month, will appear a typical elevation of a modern store front, and a plate of half size details of Kawneer construction. See June and July issues for other details.



TYPE H 30 TYPICAL ELEVATION OF LADIES READY TO WEAR STORE. DEVELOPED BY KAWNEER MFG. CO.

THIS treatment of a ladies' Ready-to-Wear Store is a very good example of the possibility of designing a front absolutely different without being freakish.

It provides for two doors with a spacious entrance without the sacrifice of any display space in the two large windows. The special octagon case is to be trimmed so as to display the merchandise in both the vestibule and store proper.

The attractiveness of this front is insured by the unique ceiling, which combines the effect of a panelled ceiling with that of a sky-light.

The art glass panels and lamps are of subdued colors to harmonize with the balance of the work. The 4 by 4-in. red and black vitrified tile are laid with white joints, making a floor which completes a striking and harmonious whole.

The Kawneer Manufacturing Company, Limited, will show different "up-to-date" KAWNEER STORE FRONT designs, for various types of business, such as Jewelry, Candy, Clothing, Millinery, etc.

The details on the opposite page, drawn half full size, show some of the members which constitute KAWNEER STORE FRONTS. Readers are asked to cut these out, as they will prove to be a valuable reference asset to them in the future.

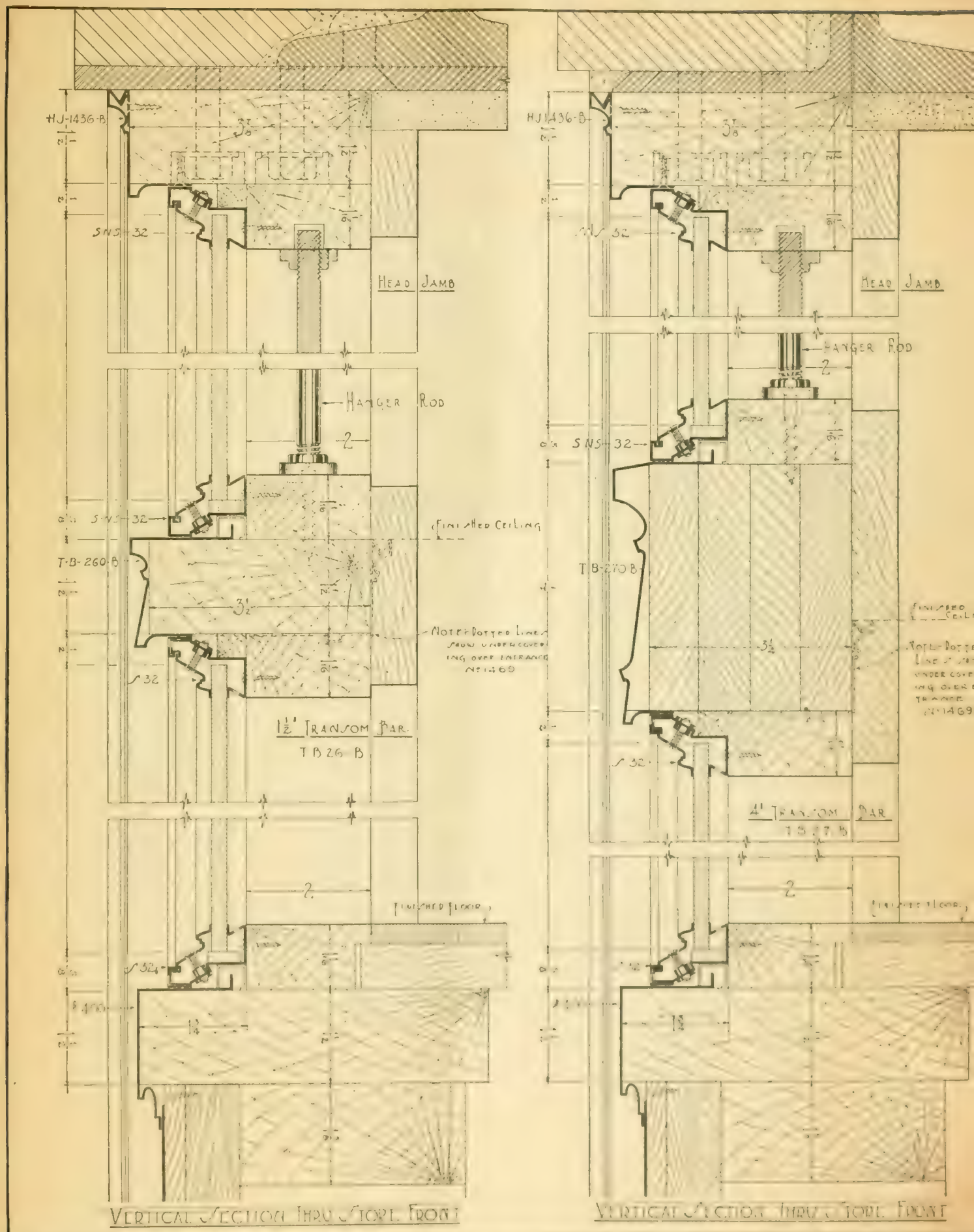


PLATE NO. 4 KAWNEER MFG. CO. LIMITED GUELPH, ONT. Kawneer STORE FRONTS

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

PRICE AT MONTREAL

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$21.00
2 x 4 in. to 2 x 12 in., 16 ft.	26.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00 to 30.00
1 in. hemlock No. 1	22.00
No. 1 hemlock decking	23.00 to 25.00
No. 2 hemlock dimensions and 1 in.	26.00 to 30.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough.	$32.00 to 40.00
2 in. white pine, mill stock	29.00 to 33.00
⅞ x 8 and 10 in. pine shelving	36.00 to 45.00
⅞ x 12 pine shelving	42.00 to 50.00
No. 1 white pine flooring	10.00
No. 1 spruce flooring	30.00
No. 1 pine decking, D2S	40.00
No. 1 pine V. or beaded sheeting	40.00
No. 2 pine V. or beaded sheeting	30.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	$1.75
5 in. casing, per 100 ft.	2.10
8 in. pine base, per 100 ft.	3.25
10 in. pine base, per 100 ft.	4.20
4 in. pine window stool, per 100 ft.	2.75

Shingles, Lath, Roofing, Etc.

No. 1 pine lath	5.00
No. 2 pine lath	4.50
No. 1 spruce lath	4.00

Cedar Posts—Fence

5 in. at small end	5c. foot
7 in. at small end	7c. foot

Hardware

Nails, wire, common	$3.70 base keg
Nails, cut, common	3.20 " "
Sash weights, cast iron	1.90 per 100 lbs.
Tarred felt paper	.43 roll
Building paper	.35 roll

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	17.00
No. 1 dry pressed buff bricks	21.00
Red roofing tiles	11.50
Open work fronts	12.00
Wire cut brick for foundation work	10.00
Fire clay	25.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	15c. foot

Cement, Plaster, Stone, Etc.

Portland cement	1.60 bbl.
White lime	.35 "
Plaster	.85 per 100 lbs.
Gravel	10.00
Mortar color	.40 box
Sand	.75 load
Crushed stone, ¾ in.	1.45
Crushed stone, 1 in.	1.60
Crushed stone, 1½ in.	1.75
Hardwood plaster	11.00
Brick	1.85 per M
Hair (Canadian)	.03 per lb.

PRICE AT TORONTO

Hemlock Lumber (Sized)

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$24.00
2 x 4 in. to 2 x 12 in., 16 ft.	24.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00
1 in. hemlock, No. 1, 6 in. wide.	24.00
No. 1 hemlock decking	26.00
No. 2 hemlock dimensions and 1 in.	19.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	$25.00 to 33.00
2 in. white pine, mill run	29.00 to 34.00
⅞ x 8 and 10 in., pine shelving	33.00 to 40.00
⅞ x 12 pine shelving	45.00 to 48.00
No. 1 white pine flooring	33.00
No. 1 spruce flooring	27.00
No. 1 pine decking, D2S	28.00
Spruce decking	27.00
No. 1 pine V. or beaded sheeting	35.00
No. 2 pine V. or beaded sheeting	32.00

No. 1 Common Long Leaf Yellow Pine

2 x 4 in. to 2 x 14 in., 10 to 16 ft.	$31.00 to 43.00
2 x 4 in. to 2 x 14 in., 18 to 20 ft.	33.00 to 45.00
2 x 4 in. to 2 x 14 in., 22 to 24 ft.	35.00 to 47.00

Yellow Pine Finish

4/4 x 6, 8, 10 and 12 B. & B. smoke dried	$45.00
5/4 x " " " " "	52.00
6/4 x " " " " "	52.00
8/4 x " " " " "	60.00
4/4 x " " " steam dried	48.00 to 52.00
5/4 x " " " "	50.00 to 55.00
6/4 x " " " "	50.00 to 55.00
8/4 x " " " "	60.00 to 65.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	$1.75 to 2.00
5 in. casing, per 100 ft.	2.00 to 2.50
8 in. pine base, per 100 ft.	2.75 to 3.25
10 in. pine base, per 100 ft.	3.80 to 4.50
4 in. pine window stool, per 100 ft.	3.00

Hardwood Trim, Flooring, Etc.

Quotations will be given on request.
See editor's note above.

Shingles, Lath, Roofing Etc.

XXX Cedar shingles	$3.50 per M
No. 1 cedar	4.00
No. 1 pine lath	5.00 to 6.25 per M
No. 2 pine lath	4.75 to 5.25
No. 1 spruce lath	4.25
Roofing	1 ply $1.60 per sq.
	2 ply 2.25 "
	3 ply 2.50 "

Cedar Posts—Fence

5 in. at small end	.25 each
7 in. at small end	.50 each

Hardware

Nails, wire, common	$3.65 wt
Nails, cut, common	3.20
Sash weights, cast iron	2.00
Tarred felt	.60 roll
Building paper, plain	.50

NOTE TO READERS—If anything you buy is not suggested in this section as it should be, write us for information or send a clipping of the ad.

Price List of Building Materials—*Continued.*

Price at Toronto—*Continued*

Glass

United inches	Star	D.D.
Up 25 (per 100-ft. box)	$7.80	11.90
26-34	8.15	12.85
35-40	8.50	13.60
41-50	11.75	15.50
51-60	12.25	15.85
61-70	13.10	16.80
71-80	14.75	18.35
81-84		22.75
85-90		24.35
91-94		25.00
95-100		29.00
101-105		32.00
106-110		37.00

Less 30 p.c. F.O.B., Toronto.
Less 25 and 5 p.c., Montreal.

Wired glass	16c per sq. ft. less 10 p.c.

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$14.00 to 18.00 pr M
No. 1 dry pressed buff bricks	14.50 to 18.00
Red stock bricks	10.00 to 12.50
Sand lime bricks	8.50
Grey stock bricks	10.50 to 12.50
Sewer bricks	8.75 to 9.50
Wire cut brick for foundation work	8.00 to 9.00
Porous terra cotta bricks	12.00 to 15.00
No. 1 enamelled bricks, all colors, from	80.00 to 150.00
Fire brick	26.00 to 30.00
Rough texture brick	15.00 to 17.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	16c. foot
Verandah post caps, 16 in.	1.45 each
Verandah post caps, 20 in.	1.75 "
Chimney caps, 1 flue in 1 piece	2.00 "
Chimney caps, 2 flues in 2 pieces	3.50 "
Chimney caps, 3 flues in 3 pieces	5.00 "

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$1.85 bbl. (1.55 in car lots)
Sand, for cement or brick work	1.20 a yard
Lime	.38 cwt.
Hydrated lime (Canadian)	10.60 ton
Hydrated lime (American)	15.00 "
Mortar color	black, 6½; red, 2
Plaster of paris	$2.50
Crushed stone, 2 in.	1.20
Crushed stone, 1 in.	1.25
Crushed stone, ⅜ in.	1.25
Hardwall plaster	9.60 neat 4.00 to 5.00 sanded
Gravel	1.50
Hair (plaster)	.07 lb.

PRICE AT WINNIPEG

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$29.00
2 x 4 in. to 2 x 12 in., 16 ft.	29.00
2 x 4 in. to 2 x 12 in., 18 ft.	29.00

Shingles, Lath, Roofing, Etc.

XXX B. C. cedar shingles	$4.00 & 3.50 per M
No. 1 pine lath	5.75 per M
Metal lath	.16 to .20
Roofing felt (2-ply)	2.50 per roll

Hardware

Nails, wire, common	$4.00 per keg
Nails, cut, common	4.00
Sash weights, cast iron	2.75 cwt.
Tarred felt paper	1.00 per roll
Building paper	.75
Insulating paper	1.25

Price at Winnipeg—*Continued*

Glass

United inches	Single	Double
Up 25	$6.00	8.00
26-40	6.50	9.00
41-50	7.00	10.25
51-60	7.50	11.00
61-70	8.00	11.75
71-80	8.50	12.75
81-85		15.75
86-90		16.75
91-95		17.75
96-100		21.00
101-105		23.50
106-110		27.00

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$25.00 to 50.00
No. 1 dry pressed buff bricks	30.00 to 40.00
Red stock bricks	25.00
Sand lime brick	12.00
Porous terra cotta bricks	18.00 per M
No. 1 enamelled bricks, all colors, from	100.00
Fire brick	52.50
Oriental brick	35.00
Sewer pipe, 4-inch	.11 per ft.
Sewer pipe, 6-inch	.18½ per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$2.60 per bbl.
Sand, for cement or brick work	1.85 a yard
Lime	.34 per bu.
Hydrated lime	12.00 per ton
Mortar color	.05 per lb.
Plaster of paris	.75 per bag
Crushed stone, 2 in.	2.65 per yard
Crushed stone, 1 in.	2.90
Crushed stone, ⅜ in.	2.90
Hardwall plaster	13.00 per ton
Gravel	1.85 per yard
Hair (plaster)	1.25 per bale

PRICE AT VANCOUVER

Shingles, Lath, Roofing, Etc.

XXX B. C. cedar shingles	$2.20 & 2.10 per M
No. 1 pine lath	2.25 perM

Hardware

Nails, wire, common	$3.25 per keg
Nails, cut, common	4.25
Tarred felt paper	.90 per roll
Building paper	.70

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	$42.00 per M
No. 1 dry pressed buff bricks	42.00
Red stock bricks	13.00
Fire brick	45.00
Sewer pipe, 4 inch	.25 per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	$3.00 per bbl.
Lime	1.35 per bbl.
Hydrated lime	4.25 per bbl.
Plaster of paris	4.50 per bbl.
Hardwall plaster	14.50 per ton
Hair (plaster)	14.50 per ton

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

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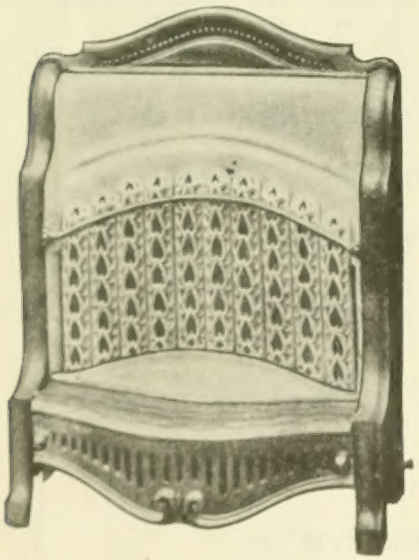
W

Wettlaufer Bros., Ltd. 3



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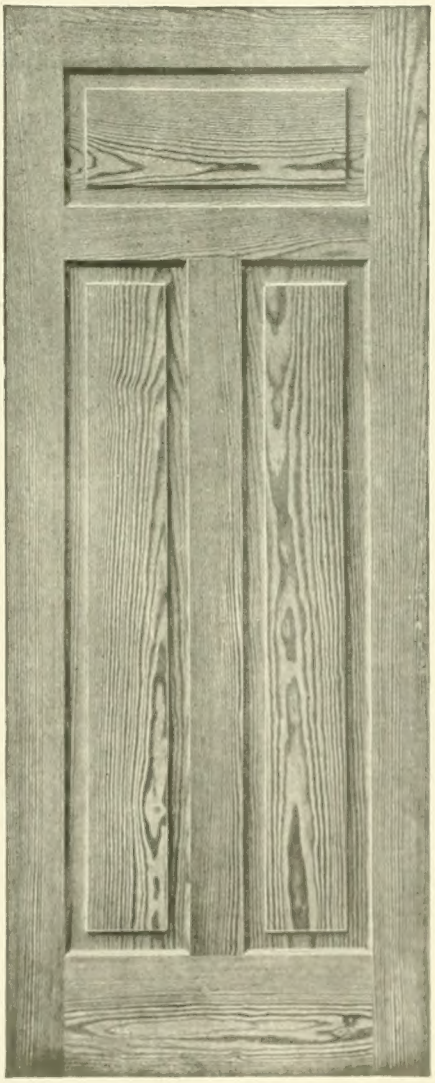

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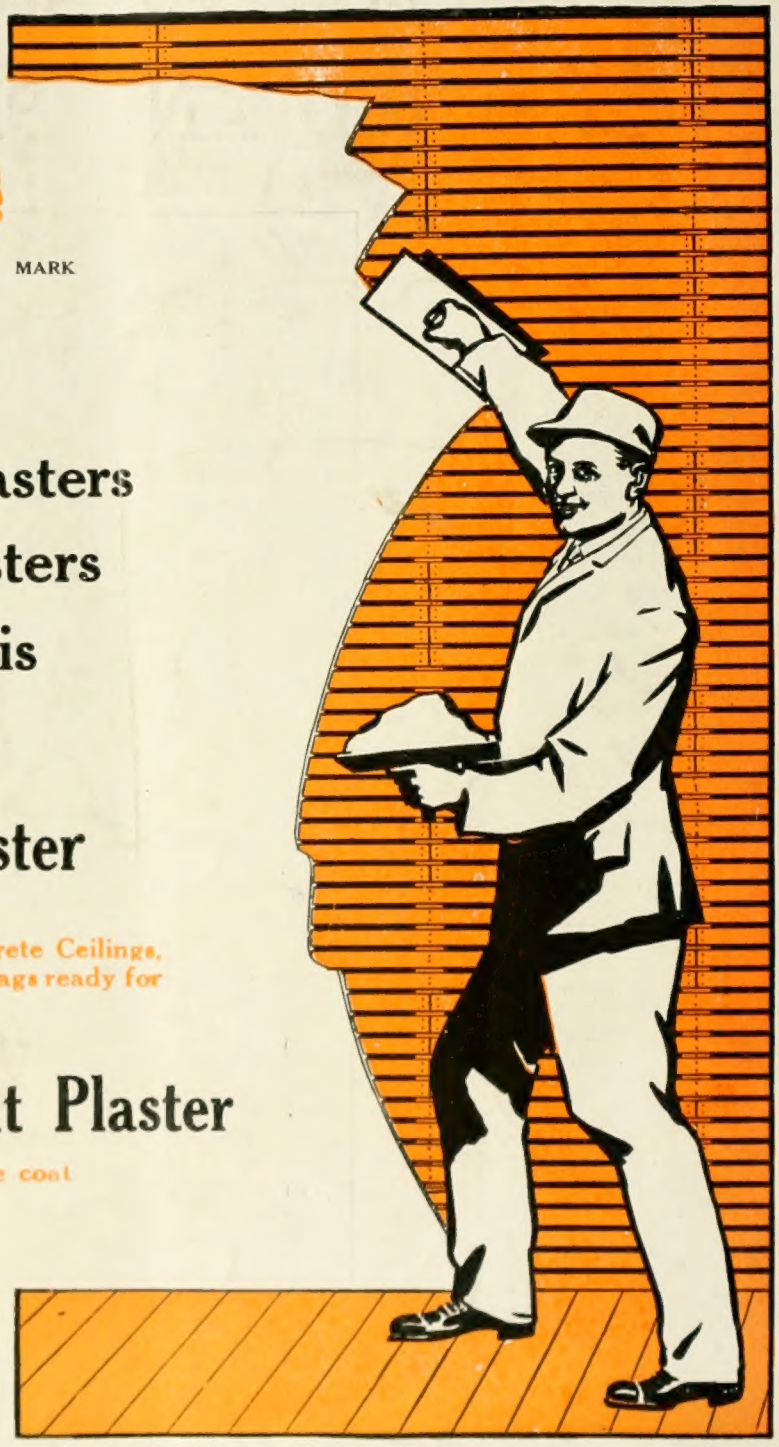

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